Integrated Public e-Services: Joining-up Strategies and Technologies for City Promotion

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Integrating Information and Communication Technologies (ICT) with Social Science research is recognised as a main driver for scientific and technological progress in the knowledge and networked society, and also a precondition for advances in product and service innovation to address key societal challenges. Yet, our knowledge and understanding of this complex cross-disciplinary theme in the domain of cultural heritage and urban destinations is fragmented and partial, particularly about user-focused public e-services and the organisational, management and institutional factors that support and encourage applications that are novel, valuable and ambitious. This article reports on the intentions and achievements of the European 6th Framework Programme project ISAAC, exploring features of the urban level of environment that encourages novel research and application activities on the heritage e-destination. It highlights the project's work, which has developed new e-services and applications in this scientific field, linking tourism, heritage, ICT and urban constructs in Europe and beyond. In conclusion, insights for future science and policy are drawn to stimulate new research and practical solutions in joining up strategies and technologies for city promotion through integrated public e-services.[1]

1 Introduction

Urban tourism is one of the fastest growing tourism sectors in the world. But the unexploited opportunities and the rising adverse effects on the local communities have increasingly highlighted the importance of dealing with the sector in relation to the urban economy, environment, society, and culture. In the new century, the EU has defined city tourism as a corner stone of policy for urban development that should combine a comparative supply able to meet the visitor's expectations with a positive contribution to the development of cities and the well-being of the residents (European Commission 2000). But in a fierce global market, city destinations are facing a growing number of challenges in developing, managing and promoting their products in a competitive and rapidly-changing ambiance. Not only do tourist communities need to attract new visitors, but they increasingly are compelled to re-invent themselves to ensure local sustainability and to appeal to local residents and businesses (Crouch 2000). Centred on the fundamental principles of exchange between people, tourism is a powerful expression and experience of culture and heritage. At its heart tourism is founded on culture – material and in symbolic resources – which, at one level require protection, conserving and managing, and on another level are ever-changing, more and more creative and increasingly mobile.

In its broad scope, cultural heritage means both "tangible" (historic places, buildings, monuments, archaeological sites, artefacts) and "intangible" resources (social values, traditions, customs, practices, beliefs, artistic expression, language). In many European cities, it is a main touristic resource and a key enabler of urban regeneration (Garcia 2004). Cultural tourism thus is intrinsically linked to the other urban sectors. And because of its complex, multi-functional and dynamic nature, it involves public and private stakeholders, including local authorities, public agencies, local businesses, hotels, travel agents, development agencies, transport operators, city attractions, tourism professional organisations as well as regional and national authorities that provide policies and guidelines with urban impact. Including the main economic and social actors in the decision-making process is considered essential for maximising the benefits of cultural tourism in the host communities (Svensson et al. 2005). But to ensure the long-term sustainability and competitiveness of the destination, local residents, citizen organisations and tourists should also be recruited for the cause (Paskaleva-Shapira 2007).

In the digital world, the contribution of cultural heritage to tourism development can be greatly enhanced by using the Internet to interpret the local assets (Mitsche et al. 2008) and to provide new services. Indeed, ICT are nowadays profoundly changing urban cultural tourism and destination promotion. Perceived as a key enabler

of reaping the benefits of Europe's rich cultural heritage (Council of Europe 2003), new ICT are bringing profound changes in the way cities and organisations pursue a competitive edge, both for sustainability and interpretive perspective. ICT can create new value not only by digitizing operations of tourist cities, business and cultural institutions, but also by enabling the development, planning, management and promotion of cultural heritage destinations through public e-services with a focus on competitiveness; above and beyond, in valorising the value of local heritage and identity and the common interests of the users. ICT solutions, combined with the projected increases in bandwidth for both wired and wireless communication and new developments in data standards and web ontology languages can help create greater added value by providing better public services. However, interfaces between cultural tourism and ICT can positively impact the autochthonous culture if both citizens and tourists participate actively in policy and decision making processes (Go et al. 2003).

Undoubtedly, the participation of the public organisations, industry, the locals and tourists in innovative integrated e-services for destination promotion will not only secure the balance of the stakeholders' welfare and curb many of the undesired socio-cultural and environmental tourism impacts but also guarantees public sector e-service quality, visitor satisfaction (Sigala, Leslie 2005), and richer user experiences. This means that successful implementation of the emerging technology depends on a high degree of cooperation across sectors, research disciplines and borders. The ISAAC project has aimed to pave the way towards the more efficient use of ICT services in urban destinations by gathering the appropriate range of expertise needed to address this problem.

As it was shown, in the global arena of fiercely competing destinations, tourist cities are expected to implement drastic promotional and management changes and become actively involved in formal and informal networks in order to gain a competitive edge, yet perform in a sustainable way. This requires adopting a systemic approach and increasing the efficiency and quality of the products, facing the market ISAAC addressed these challenges by advancing the topics in the cross-disciplinary field of ICT, cultural heritage, tourism and cities, from a theoretical and practical point of view. In this context, if ICT have been used in the past for their transactional role, for example ticketing and booking and their contribution to the valorisation of the cultural tourism content has been extremely limited, ISAAC has reinforced them as a powerful medium of providing integrated e-services in the sector. In this article, I touch upon the main intentions and achievements of ISAAC: "Integrated e-services for an advanced access to heritage in cultural tourist destination" (ISAAC 2006–2009), with a view to perspective challenges.

2 ISAAC's underlying aspirations and intent

The main aim of ISAAC was to valorise cultural assets as tourism resources using digital technology. Notably, to develop a novel user-friendly ICT platform providing integrated e-services for European cultural destinations, through five operational objectives:

1. Definition of a European reference model to standardise representation, annotation, presentation and retrieval of Content in the Cities' Cultural Heritage domain within the context of interpretative strategies, by improving access to current and future information.
2. Development of ICT architecture capable of offering tourists and other users customised e-services for retrieving and accessing complex multimedia information represented in the above reference model, based on cutting edge service-oriented and multi-agent technology capable of customising information for better e-services in the cultural tourism sector.
3. Development of an Intelligent Mapping System of Cultural Heritage for the preservation, interpretation and monitoring of urban tourism potential in three different European cities, including a user-oriented satisfaction monitoring system and a geographic-information-system-based (GIS) decision support tool.
4. Building an e-governance framework to assess the implications of strengthening ICT services in local cultural heritage attractions for the pro-

motion of tourism destinations, enhancing their attractiveness and competitive advantages.
5. Dissemination and exploitation of the project's vision and results to the wider research, policy and cultural community and ensure their long-term durability and effects on European cultural heritage destinations.

ISAAC brought together partners from fourteen European institutions – researchers, ICT companies, city authorities and cultural organisations – pooling knowledge and experience in the fields of digital culture and heritage, e-tourism, and urban management.[2] The three pilot cities, centres of diverse tourism and cultural strategies and activities, were fundamental to the ISAAC's success, hosting the project's research and demonstration activities and implementing the new e-services (Paskaleva-Shapira, Azorin 2009).

1. Amsterdam is a world-wide renowned cultural destination known to the many visitors as the city of "Culture", "Canal City" and "Meeting Place". Through ISAAC, the city wanted to support its strategic tourism objectives and diversify the cultural products by attracting more tourists to less known urban attractions. Using a new cultural theme "Hidden Treasures" for the project's e-services, the long term objective was to bring about more social and economic benefits to less frequented communities, ensuring a more sustainable use of the urban resources.
2. The second pilot case – Leipzig – is a city from the former East Germany, undergoing a dramatic change in the last fifteen years through urban renewal, regeneration, culture, arts, and tourism. Leipzig has long prided itself as "The City of Music" (home of Mendelssohn and Bach) but other local attractions like the Trade Fair, central station, old City Hall, and Goethe's literature are also positing themselves in the city marketing. The Office of Urban Regeneration, which is in charge of the revitalization of the historic "Gruenderzeit", an architectural style referring to late 19th century, wished the new e-services to help up-lift this urban area for economic boost, entrepreneurship, and social cohesion.
3. Finally, the Italian City of Genoa entered ISAAC with the desire to support its strategic agenda of sustainable development through urban integration and social inclusion. ISAAC's new e-services focus on the World Heritage Site "Palazzi dei Rolli" and are used as a promotional vehicle for marketing Genoa as a "City of Culture" with world class museums, grand historic buildings, lively urban squares, and numerous cultural events to its diverse visitors.

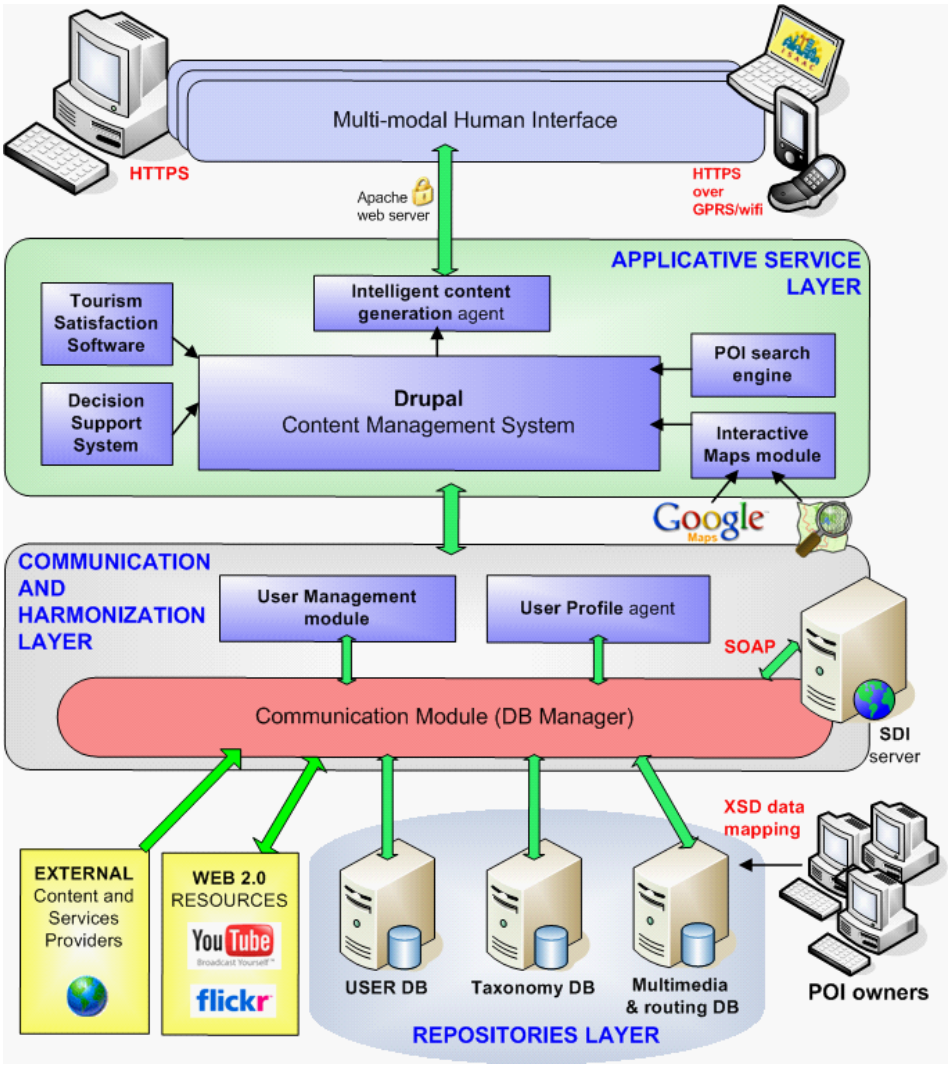
3 ISAAC's overall achievements and bequest

ISAAC developed a novel user-focused interactive environment for intelligent heritage and tourism in tourism destinations using a participatory approach, with a view to sustainability. The system architecture is organized in four layers (Megliola et al. 2008) shown in Figure 1: *Repositories Layer* (containing the common database of the ISAAC platform); *Communication and Harmonization Layer* (gathering content and data coming both from the ISAAC internal repositories and from external resources); *Applicative Services Layer* (hosting a set of integrated e-services applications); *ISAAC multi-modal human interface* (a graphical user interface allowing users to interact with the ISAAC e-services using a user-centred and friendly approach).

Designed as an interactive intelligent system for destination promotion, the ISAAC portal can enable long-term preservation of local heritage and community assets by integrating ICT in tourism, digital cultural heritage, and territorial development in the host community in a stakeholder-relevant digital ambiance. Through the portal, local government is able to improve IT usage in delivering e-services using participative learning and reviewing processes and tools with the citizens and the private sector based on a bottom-up approach that shifts away from administrative-oriented towards user-oriented organisations (Torres et al. 2006), allowing a more efficient communication with the relevant actors so as to better satisfy their requirements, expectations and demands.

Participatory methods and tools constitute the core of the new online ISAAC platform,

Figure 1: ISAAC System Architecture



Source: Arezza et al. 2007

which integrates cultural tourism e-services, an e-governance framework and decision support e-tools for the urban destination (Paskaleva-Shapira, Azorin 2009). The platform has provided new cultural heritage content for the visitors of the three partner cities: Amsterdam, Genoa and Leipzig. The integrated ICT infrastructure comprises of cultural heritage content (including stories, images, metadata, GIS mapping, user profiling, etc.) and e-services based on that content (including annotation tools, interactive activities, social web services, content management support for city officials, decision support, etc), in order to integrate diverse knowledge on European cultural destinations for targeted stakeholders. In this sense – apart from tourists and local residents – the end-recipients of these services, stakeholders have also included the cities' strategic, attraction and destination managers and other civic representatives and of course ICT professionals focused on urban development and marketing. Essentially, ISAAC brought the city's main actors together in the same e-space,. In short, the research foundations, established throughout the project, were successfully integrated with the technical work in that the results effectively responded to the needs of the city partners. ISAAC achieved its mission through both technological and non-technological innovations. Technology advance was in the heart of the project but dealing with "soft factor" challenges

was an intrinsic part of the work. On the technical front, a truly integrated ICT platform was developed, which houses novel e-services that are accessible in a straightforward and user-friendly manner, for end-users and content providers. The support of user-generated content and social web features greatly enhances users' pre- and post-visit experience, while the exploration of a mobile version of the platform contributes to the future advancement of visitors' experience during the visit itself. The consortium and the technical partners made a considerable effort to encourage the active engagement of the city participants throughout the project lifecycle and the funder has recognised this as a key point in the success of the project.

ISAAC's ICT platform also responded to challenges related to non-technological aspects of design, development and application of integrated e-services in cultural destinations. We addressed process issues, but also change management, organisational transformation, ontologies, and policy making. Revisiting processes, such as content creation and management, stakeholder analysis, knowledge management, and user satisfaction and demands helped us to find ways to adapt cultural tourism contents to the specific user needs. Justifiably, the team touched upon issues of stakeholder governance, user-centred design, participatory decision-making, impact assessment and monitoring. Urban destination social capital and local tourism and networking systems were other venues of exploration. As a result, a solid research and academic basis were established, which can be applied beyond the specific pilot case such as the development of interpretive strategies to promote the cultural heritage of cities through the use of stories and a user-centric approach, as well as the definition of a methodology for decision support. Finally, ISAAC developed a strong potential for exploitation, especially by the technical partners and the cities. Consequently, the European Commission has qualified ISAAC's potential impact and exploitation prospects as "extremely high".

Because of the project's new integrative approach, the ISAAC e-destination portal becomes a constant reference point for a wider experience of a local heritage, territory and community. For instance, the visitor could prepare her or his visit on the web (e. g. through VR experiences, speaking and interacting with local people, or other tourists, reserving hotels, signing for events, etc.). Then, she or he could access mobile information and services during the actual visit (e. g. using location-based services) to learn more about the site and the opportunities. In a post-visit phase, the web site could help build mid and long-term relationships with the place and the social networks based on the cultural tourism experience (e. g., visitors could share feedback from their experiences, could play together in distributed role games, or engage in more sustained activities aimed at safeguarding heritage) (Paskaleva-Shapira, Megliola 2009).

4 Legacy and forethought

ISAAC was launched in September 2006 and concluded in October 2009. In developing ISAAC's new system and e-services, the project has demonstrated that integrating ICT and social science research is the key to facing the challenges of the new century. ISAAC took a truly multidisciplinary approach, engaging with both service providers and users. The project has concluded that modernising ICT is not sufficient on its own to transform service delivery in cultural heritage tourism. It also showed that changing the way government organisations work and transforming the government-stakeholder relationships can dramatically unlock the potential for better and richer e-services in the sector.

As it is clear that in times of searching for cultural identities and meanings, the contribution of heritage to present and future urban development will continue to grow. Its role to sustainable development will be constantly challenged. Exploring the scope and envisioning the future potential of cultural heritage will be of increasing demands. So the search for interactive environments and applications, novel ICT solutions, and innovative methods and their applications will be part of the coming future. Amidst the rising challenges, major issues of networking, collaboration, and innovation will have to be addressed. Leveraging the Web to enable urban competitiveness will be a bold new pursuit. As a result, revising destination competitiveness in the perspectives of developing and promoting the cul-

tural heritage city will continue to be a restless quest. For that reason, binding together culture, heritage and destination promotion will continue to be a real test to cities and localities who are seeking the competitive edge and a sustainable future. For that to succeed, however, providers and users alike will have to join up strategies and technologies for city promotion that shall nurture a fresh and compelling new nature, one that is inspiring and enjoyable for all.

Notes

1) ISAAC was co-funded by the EU through the IST programme under FP6 (Contract Number 035130). The author wishes to thank all project partners for their dedication and enthusiasm in making ISAAC a success.
2) The Institute for Technology Assessment and Systems Analysis (ITAS) was the main coordinating agency. Other partners included the University of Nottingham, School of the Built Environment (UNOTT, United Kingdom), TXT E-solutions SPA, International Research Unit (TXT, Italy), University of Sunderland, Tourism Department, School of Arts, Design, Media and Culture (SUND, United Kingdom), Free University of Amsterdam, Department of Spatial Economics (VU-FEWEB, The Netherlands), Fondazione Eni Enrico Mattei (FEEM, Italy), Politecnico de Turin, Casa-Citta Department (POLITO, Italy), State Russian Museum (SRM, Russia), Instituto Geografico de Agostini SPA (IGDA, Italy), Free University of Amsterdam, SpinLab, Faculty of Earth and Life Sciences (VU-SpinLab, The Netherlands), University of Naples Federico II, Department of Architectural and Environmental Assets Conservation (DCBBA, Italy), Stadt Leipzig, Office for Urban Regeneration and Residential Development (LEIPZIG, Germany), Gemeente Amsterdam, Communications Department, (AMSTERDAM, CoThe Netherlands), and Comune di Genova, Cultural Museums IT Department, (GENOA, Italy).

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Technische Kulturen oder kultivierte Technik?

Das Internet in Deutschland und Russland

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Die Bedingungs- und Beeinflussungsverhältnisse von Kultur und Technik stehen in einem wechselseitigen Spannungsfeld. In Anbetracht des zunehmenden globalen Techniktransfers und den sich weltweit auswirkenden Folgen technischen Handelns auf (andere) Kulturen erlangt diese wechselseitige Beziehung eine neue Signifikanz: Technisches wird zunehmend in seiner „Kulturalität" (als Kulturform), Kultur (auch) in ihrer „Technizität" (Technikförmigkeit) analysiert und interpretiert.[1] Insbesondere die Wechselwirkung zwischen Kultur und Internet stand in den letzten zehn bis 15 Jahren oft im Fokus des wissenschaftlichen Interesses verschiedener Disziplinen. Ausgangspunkt des abgeschlossenen Dissertationsprojekts „Technische Kulturen oder kultivierte Technik? Das Internet in Deutschland und Russland"[2] war die Frage, inwieweit die formgebenden bzw. regulierenden Prozesse der Aneignung und Verwendung des Internets durch spezifische kulturelle Settings einer Gesellschaft beeinflusst werden. Welche Rolle spielen kulturelle Kontexte wie etwa Sprache, Geschichte und (soziale) Institutionen oder Konventionen in Form von Kommunikations-, Denk-, Empfindungs- und Handlungsmustern bei der Entstehung und Nutzung von Technik? Inwiefern beeinflussen Visionen und Leitbilder den Entwicklungsprozess von Technik? Sind diese kulturspezifisch?

1 Thesen

In der Fachliteratur wird das Thema v. a. unter einer These debattiert: Das Internet als ein Netzwerk zur digitalen Kommunikation sei ein Medium, das durch seine weltweite Verbreitung (etwa in Form von Techniktransfer) und Nutzung entscheidend zur Angleichung von bisher stark differierenden Kulturräumen beitrüge, dass es zumindest strukturell in Bezug auf die Reichweite und die Variationen von Kommunikation global einen Wandel herbeiführe, der in allen Kulturen